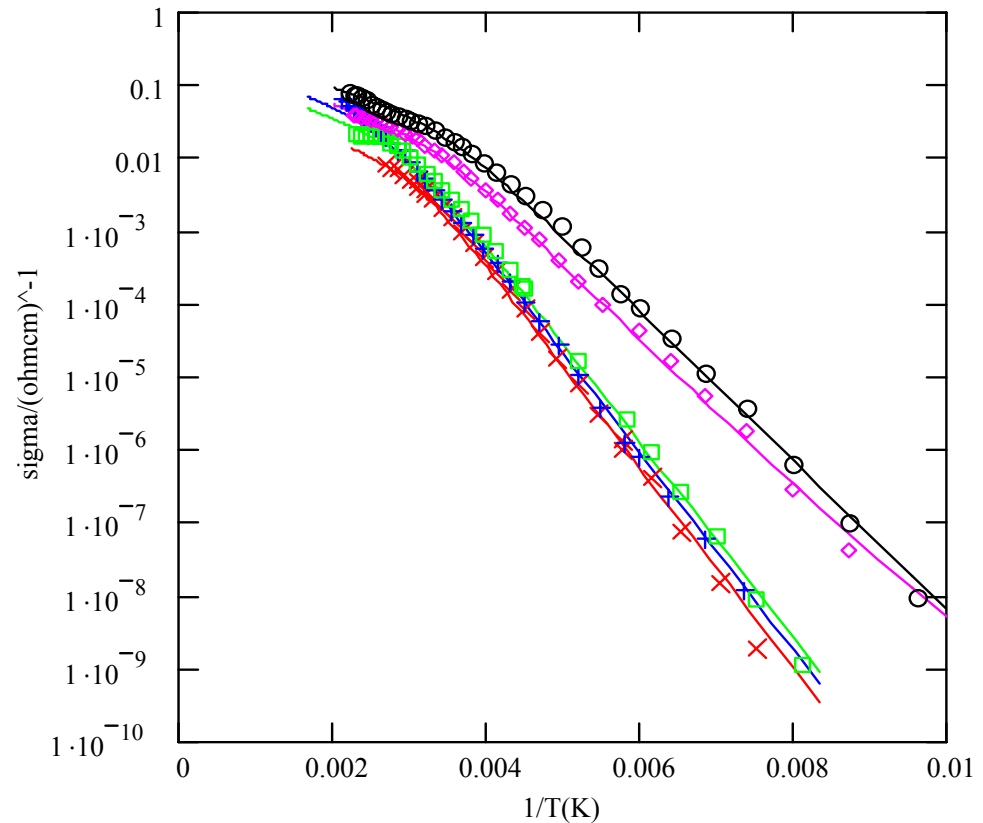


Non-Arrhenius Conductivity Caused by Trapping of Mobile Ions

Steve W. Martin, Iowa State University, DMR 9972466

The search for higher conducting electrolytes for lithium batteries has resulted in the observation of a “non-Arrhenius” conductivity that causes the conductivity to “roll over” at higher temperatures, thereby limiting the conductivity to values significantly below that expected.

Research on this project has shown that this appears to result from trapping of the mobile Li ions and is a ubiquitous manifestation of the high number density of mobile carriers in these electrolytes. One way to achieve higher conducting electrolytes is to increase the dielectric constant of the electrolyte to reduce the probability of trapping of the mobile Li ions.



Gaffers Guild gives glassblowing demos to ~ 2000 K-12 students

Steve W. Martin, Iowa State University, DMR 99-72466

Using the ISU glass blowing studio as a vehicle of informal science education, the ISU Gaffers Guild gives hands-on demonstrations to thousands of K-12 students every year. Below, gaffer John Burright gives a demonstration of the fascinating properties of glass to ~ 30 elementary students, teachers, and parents.



Above, PI Steve Martin shows a student how to safely hold a blow pipe with hot glass on the end.

